Owner's Manual & Safety Instructions

Save This Manual Keep this manual for the safety warnings and precautions, assembly, operating, inspection, maintenance and cleaning procedures. Write the product's serial number in the back of the manual near the assembly diagram (or month and year of purchase if product has no number). Keep this manual and the receipt in a safe and dry place for future reference.

CEN-TECH®

ITEM 61747

6 VOLT / 12 VOLT

BATTERY LOAD TESTER

Visit our website at: http://www.harborfreight.com
Email our technical support at: productsupport@harborfreight.com

When unpacking, make sure that the product is intact and undamaged. If any parts are missing or broken, please call 1-888-866-5797 as soon as possible.

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No portion of this manual or any artwork contained herein may be reproduced in any shape or form without the express written consent of Harbor Freight Tools.
Diagrams within this manual may not be drawn proportionally. Due to continuing improvements, actual product may differ slightly from the product described herein. Tools required for assembly and service may not be included.

⚠WARNING

Read this material before using this product. Failure to do so can result in serious injury. SAVE THIS MANUAL.

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SAFETY

SPECIFICATIONS

OPERATION

MAINTENANCE

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WARNING SYMBOLS AND DEFINITIONS	
⚠	This is the safety alert symbol. It is used to alert you to potential personal injury hazards. Obey all safety messages that follow this symbol to avoid possible injury or death.
⚠ DANGER	Indicates a hazardous situation which, if not avoided, will result in death or serious injury.
⚠ WARNING	Indicates a hazardous situation which, if not avoided, could result in death or serious injury.
⚠ CAUTION	Indicates a hazardous situation which, if not avoided, could result in minor or moderate injury.
NOTICE CAUTION	Addresses practices not related to personal injury.

IMPORTANT SAFETY INSTRUCTIONS

INSTRUCTIONS PERTAINING TO A RISK OF FIRE, ELECTRIC SHOCK, OR INJURY TO PERSONS

WARNING – When using tools, basic precautions should always be followed, including the following:

1. Wear ANSI-approved safety goggles during set up and use of the Battery Tester.
2. Test in a well ventilated area. Explosive gases may be produced during testing. Do not smoke, cause sparks, or strike matches near the battery when testing.
3. Refer to the user manual of the Battery being tested for testing instructions and precautions prior to using the Battery Tester.
4. Do not connect in reverse polarity.
5. Do not expose this product to rain or wet conditions.
6. Maintain this product. Check for breakage of parts and any other condition that may affect this product's operation. If damaged, have the unit repaired before use.
7. Use this product in accordance with these instructions, taking into account the working conditions and the work to be performed. Use of this product for operations different from those intended could result in a hazardous situation.
8. This product is not a toy. Keep it out of reach of children.
9. Maintain labels and nameplates on the unit. These carry important safety information. If unreadable or missing, contact Harbor Freight Tools for a replacement.
10. People with pacemakers should consult their physician(s) before use. Electromagnetic fields in close proximity to heart pacemaker could cause pacemaker interference or pacemaker failure. Caution is necessary when near coil, spark plug cables, or distributor of running engine. Engine should be off during distributor adjustment.
11. Undercharged lead-acid batteries will freeze during cold weather. **Do not test or charge a frozen battery.**

12. When connecting the Battery Cables to the battery, avoid creating sparks; especially when the battery is being charged. Explosive gases are created during charging. Sparking could also damage the vehicle electrical system.

13. Do not touch the cooling vents on the Battery Tester during or immediately after testing the battery. They become very hot.

14. When placing the Battery Tester in the vehicle's engine compartment, take special care that the metal housing of the Tester does not come in contact with either terminal of the battery or other electrical connections.

15. Be certain of the test battery polarity before connecting the test Cable Clamps. The red Cable Clamp goes to the positive terminal of the battery. The black Cable Clamp goes to the negative terminal of the battery. Reversing Battery Tester Cable Clamps on the battery will damage the tester.

16. Do not drop the Battery Tester as it may affect proper operation.

17. Do not smoke or have open flames near the battery.

18. Do not connect the Battery Tester to the battery while the engine is running. Turn the engine off before connecting.

19. The warnings and precautions discussed in this manual cannot cover all possible conditions and situations that may occur. It must be understood by the operator that common sense and caution are factors which cannot be built into this product, but must be supplied by the operator.

⚠ SAVE THESE INSTRUCTIONS.

Specifications

Testing Capability	6 and 12 VDC battery tester
Load Test Capacity	100 amps; 500 ~ 1000 cold cranking amps
Display Meters	Analog, 0 ~ 16 VDC (max.)
Test Cycle	10 seconds per test with 1 minute cool down; 3 tests in 5 minutes
Battery Cable	16-3/4 IN. long including clamps
Clamps	Copper plated clamps

Read the ENTIRE IMPORTANT SAFETY INFORMATION section at the beginning of this manual including all text under subheadings therein before set up or use of this product.

Testing the Battery

1. To help ensure a good connection, wipe the battery terminals with a cloth to remove any dirt and grease.
2. Connect the red (positive) Cable Clamp to the positive terminal (+) on the 6 or 12V lead-acid battery. See figure A.
3. Connect the black (negative) Cable Clamp to the negative terminal (–) on the battery. See figure A. Turn clamps slightly to ensure a good connection.
4. With the clamps connected, the tester's gauge will show the battery's current charge. See figure B. If it is less than 12V, disconnect the battery and recharge before testing.

   If the recharging will not bring the reading above 12V, the battery is defective. If it shows no reading, verify that the tester is connected properly. If the tester is connected properly, the battery is defective.
5. Press (and hold) the Toggle Switch for at least 5 seconds to simulate an actual load on the battery. See figure A.
6. View the Meter Display and read the battery condition. Refer to the "Battery Condition Analysis" chart on page 6.
7. Release the Toggle Switch and remove the Cable Clamps from the battery.

Testing the Charging System

⚠WARNING

AVOID CARBON MONOXIDE POISONING. This gas comes from the vehicle's exhaust and is colorless and odorless. It can cause SERIOUS INJURY or DEATH if inhaled.

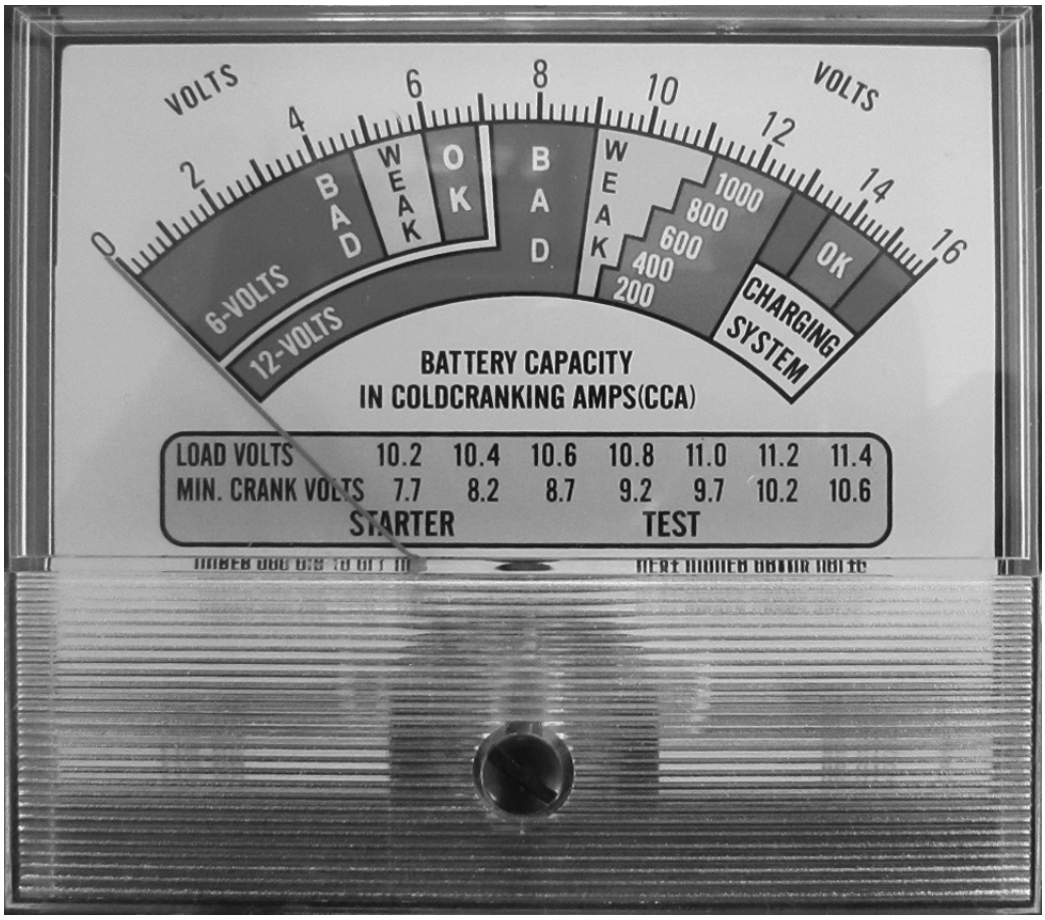
1. Connect the Cable Clamps to the battery as previously described.
2. Outside, or in a well ventilated area, start the vehicle engine and run at fast idle speed.
3. View the Meter Display and read the charging system condition (far right on the gauge). Refer to the "Battery Condition Analysis" section to the right.
4. Turn vehicle's engine off, then remove Cable Clamps.

Testing the Starter

NOTE: The engine should be at normal operating temperature and the battery should be **fully charged** before doing this test.

1. Connect the Cable Clamps to the battery as previously described.
2. Disable the ignition so the engine will not start. (Refer to your vehicle's manual.)
3. Have an assistant crank the engine. Note the voltage reading during cranking.
4. View the Meter Display and read the voltage. A reading of 9 Volts or less indicates excessive current draw. This may be due to a poor connection, a failing starter, or a battery of insufficient size for the motor.
5. When finished, disconnect the Cable Clamps, restore ignition and store tool in a clear, dry location away from children.

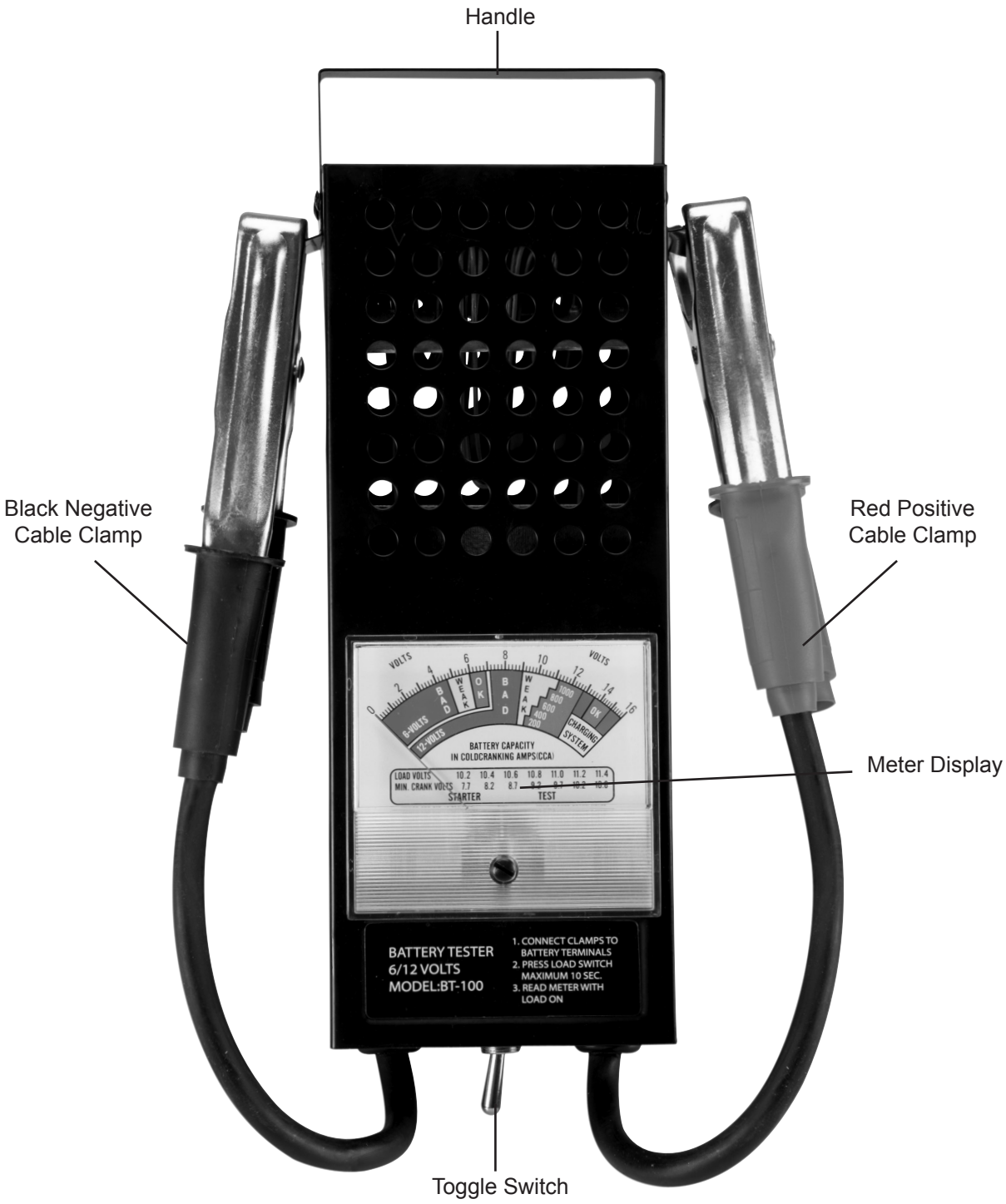
Battery Condition Analysis



Meter Display

Load Test / 15 Seconds (Display Reading)	Battery Condition
OK (Green Area)	Battery capacity is good. May or may not be fully charged. Check the charge state by testing the Specific Gravity (SG) with a Hydrometer (not included). If SG is less than full charge, check for possible charging system trouble. Recharge to full level.
Weak (Yellow Area)	If the Display Meter needle is steady, the battery capacity is not good. Battery may be defective or partly discharged. Check SG. If over 1.225, the battery is defective. If below 1.225, recharge battery and retest. If there is a difference in SG between cells over 2 points (0.025), a particular cell may be damaged. If charging does not bring SG to full charge level, then battery is either sulfated or has lost its active material.
Bad (Red Area)	If the Display Meter needle is falling, the battery is defective or has a bad cell. For a quick check, release the load Toggle Switch and note Display Meter reaction. If voltage recovers to its full potential after only a few seconds, the battery is probably defective. If the voltage recovers slowly, the battery may only be run down. Check SG, recharge and retest.
Charging System (Alt. & Reg Test)	If the Display Meter needle reads OK, charging system is functional. If it falls on the low red or high red areas, charging system may be malfunctioning.

Functions


Handle
Black Negative Cable Clamp
Red Positive Cable Clamp
Meter Display
Toggle Switch
BATTERY TESTER
6/12 VOLTS
MODEL:BT-100
1. CONNECT CLAMPS TO BATTERY TERMINALS
2. PRESS LOAD SWITCH MAXIMUM 10 SEC.
3. READ METER WITH LOAD ON
BATTERY CAPACITY IN COLDCRANKING AMPS(CCA)
STARTER
TEST
CHARGING SYSTEM

Procedures not specifically explained in this manual must be performed only by a qualified technician.

⚠WARNING

TO PREVENT SERIOUS INJURY FROM ACCIDENTAL OPERATION:
Do not use damaged equipment. If abnormal noise or vibration, occurs, have the problem corrected before further use.

Inspection, Maintenance, and Cleaning

Note: These procedures are in addition to the regular checks and maintenance explained as part of the regular operation of the air-operated tool.

1. Periodically check all nuts, bolts, and screws for tightness.
2. Store in a clean, dry location.
3. Clean the outside of the unit with a damp cloth. Never use solvents to clean any parts of this tool. **Allow tool to dry completely before use.**
4. Use compressed air to blow out debris from the load vents.
5. After each use, clean the Cable Clamps of any possible battery electrolyte. Apply a thin coat of silicon grease to prevent corrosion.

Record Product's Serial Number Here:_____

Note: If product has no serial number, record month and year of purchase instead.

Replacement parts are not available for this item.

Limited 90 Day Warranty

Harbor Freight Tools Co. makes every effort to assure that its products meet high quality and durability standards, and warrants to the original purchaser that this product is free from defects in materials and workmanship for the period of 90 days from the date of purchase. This warranty does not apply to damage due directly or indirectly, to misuse, abuse, negligence or accidents, repairs or alterations outside our facilities, criminal activity, improper installation, normal wear and tear, or to lack of maintenance. We shall in no event be liable for death, injuries to persons or property, or for incidental, contingent, special or consequential damages arising from the use of our product. Some states do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation of exclusion may not apply to you. THIS WARRANTY IS EXPRESSLY IN LIEU OF ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING THE WARRANTIES OF MERCHANTABILITY AND FITNESS.

To take advantage of this warranty, the product or part must be returned to us with transportation charges prepaid. Proof of purchase date and an explanation of the complaint must accompany the merchandise. If our inspection verifies the defect, we will either repair or replace the product at our election or we may elect to refund the purchase price if we cannot readily and quickly provide you with a replacement. We will return repaired products at our expense, but if we determine there is no defect, or that the defect resulted from causes not within the scope of our warranty, then you must bear the cost of returning the product.

This warranty gives you specific legal rights and you may also have other rights which vary from state to state.

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